USER MANUAL

GPS/GPRS Tracker Ver: 2.0

Real Time Online Tracking System

Preface

Thank you for purchasing DG-Tracker. This manual shows how to operate the device smoothly and correctly. Make sure to read this manual carefully before using this product. Please note that specification and information are subject to changes without prior notice in this manual. Any change will be integrated in the latest release. The manufacturer assumes no responsibility for any errors or omissions in this document.

Summary

Working Based on existing GSM/GPRS network and GPS satellites, this product can locate and monitor any remote targets by SMS or internet.

Application Areas

- Logistics
- Fleet management
- Commercial Vehicle Monitoring
- Public Transport Systems
- Delivery & Courier services
- Taxi Services
- Emergency Vehicles and Security

Brief Description

- Pin point location identification.
- Ease of Use - Completely Web-Based Application. User friendly web interface. Web-Based report generation for date-wise total distance traveled, idle time, no. of over-speed occurrence etc.
- Local Memory - In absence of network the device is capable to store data in its local memory for up to 15 hrs. depending upon the vehicle movement status.
- Configurable via SMS - User can change the location data update rate, user mobile no., digital outputs etc. by sending corresponding SMS.
- Over Speed Alert - User may set speed limit (ex.: 80Km/hr.) from his web site control panel against each vehicle separately. A SMS alert will be generated if the vehicle runs over this speed limit (ie. 80Km/hr).
- Device Tampering Alert - A SMS alert will be generated if the main power cable is removed.
- Status Request - Know status of the vehicle like Speed, Latitude, Longitude and Network Location etc. by sending corresponding SMS to the device.
- Panic Switch (SOS) - This is an emergency switch. A SMS will be delivered to owner/user mobile number upon pressing it in case of emergency.
- Avoid Vehicle Theft - Pin Point your stolen vehicle.
- Swift off engine remotely. - Engine Shutdown - In case of theft, hijack or other security reasons, users can remotely immobilize the engine either from an authorized cell phone, or by requesting our support center.
- 24x7 Visibility - User can monitor vehicles using PC, laptop or mobile phone.
- Notification Management - User can choose his preferred condition like vehicle speed vehicle route or boundary through geofencing for notification via SMS alerts.
- No software installation required.
- Maintenance Free - Robust improved hardware.

- Geofencing - User may draw a boundary at his desired location and able to get alert through SMS upon entering or exiting from this boundary
- Savings - On fuel, driver time and insurance costs.
- History Replay - User can view past one month movement of their vehicle for any date and time.

Specification

GSM Part:	
Network	GSM/GPRS
Band	Quad-band: EGSM 900 / DCS 1800 and GSM 850 / PCS 1900 Mhz
Transmitting Power	Class 4 (2W) at EGSM 900 / GSM 850 Class 1 (1W) at DCS 1800 / PCS 1900
GPRS Connectivity	GPRS multi-slot class 10
Data GPRS	GPRS data downlink transfer max: 85.6 kbps GPRS data uplink transfer max: 42.8 kbps
GPRS Connectivity	GPRS multi-slot class 10
GPS Part:	
GPS features	GPS receiver with SiRFstar III chip set
Processor Type	ARM7/TDMI
Channels	20
Update Rate	1 Hz
GPS sensitivity	-157 ± 2dBm
Max Altitude	< 60000 ft (18000m)
Max Velocity	1000 Knots (515m/s)
GPS accuracy	< 10m
Acquisition Rate	Hot Start: < 1 Second, Open Sky Warm Start: < 38 Second, Open Sky Cold Start: < 42 Second, Open Sky
Storage Temp.	-45°C to +90°C
Operation Temp.	-30°C to +80°C
Humidity	5%--95% non-condensing
Input Voltage	06 - 12V DC
Inbuilt Battery	Rechargeable 3.7V 1100mAh Li-ion battery Standby 10 hours

HARDWARE

GPS ANTENNA

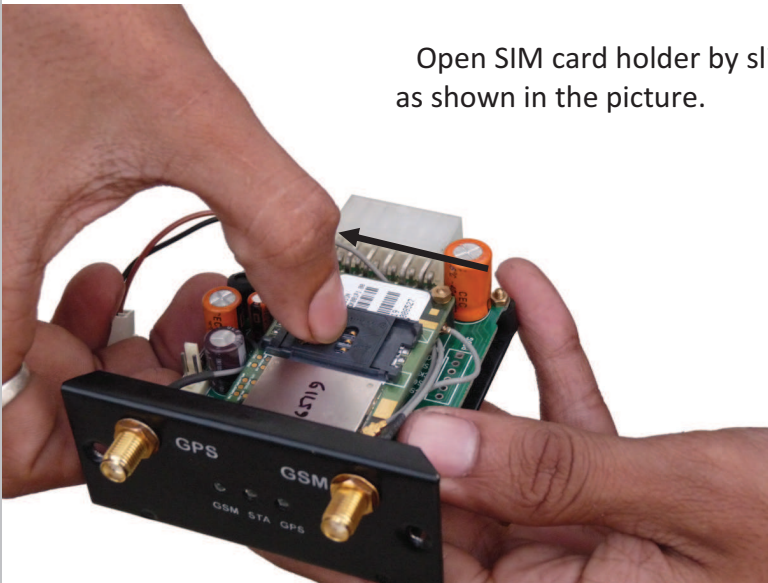GSM ANTENNA

Ignition/ Fuel Cutoff Relay

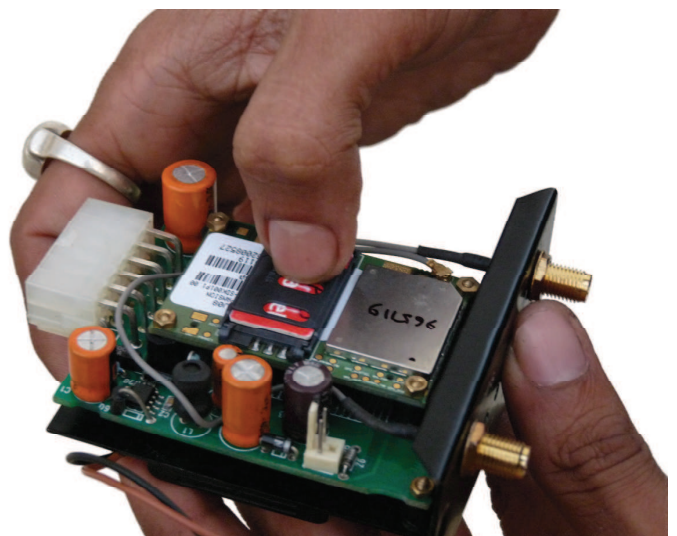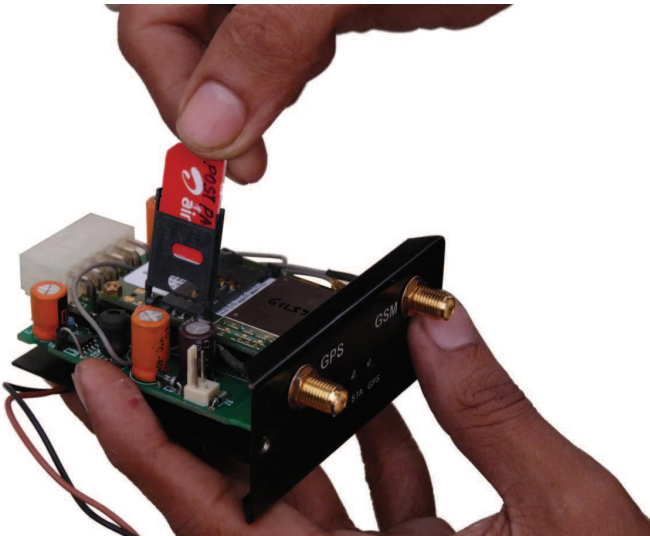# Installation of SIM Card and Internal Battery

Open front cover by opening 2 screws.

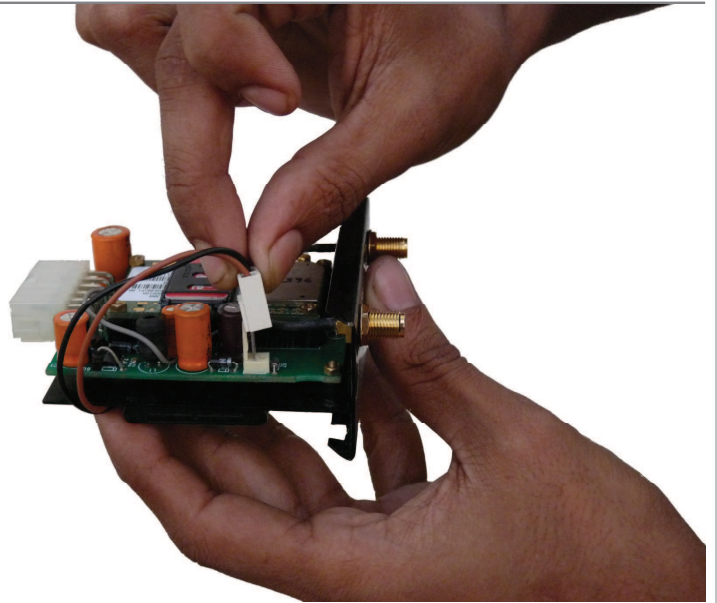Open SIM card holder by sliding it as shown in the picture.

Insert SIM Card into the holder and lock it.

Connect internal battery connector.

GSM Status LED Working State

If the internal battery has sufficient charge then the Green GSM status LED will start blinking after installation of the battery, otherwise it will take few minutes to one hour to charge the internal battery.

The working state of this LED is given below.
1) Off – GSM part of the module is not running.
2) 64ms On/ 800ms Off – The GSM part of the module does not find the network.
3) 64ms On/ 3000ms Off – The GSM part of the module find the network.

Installation of Antennas

The installation of GPS and GSM antennas are shown below.
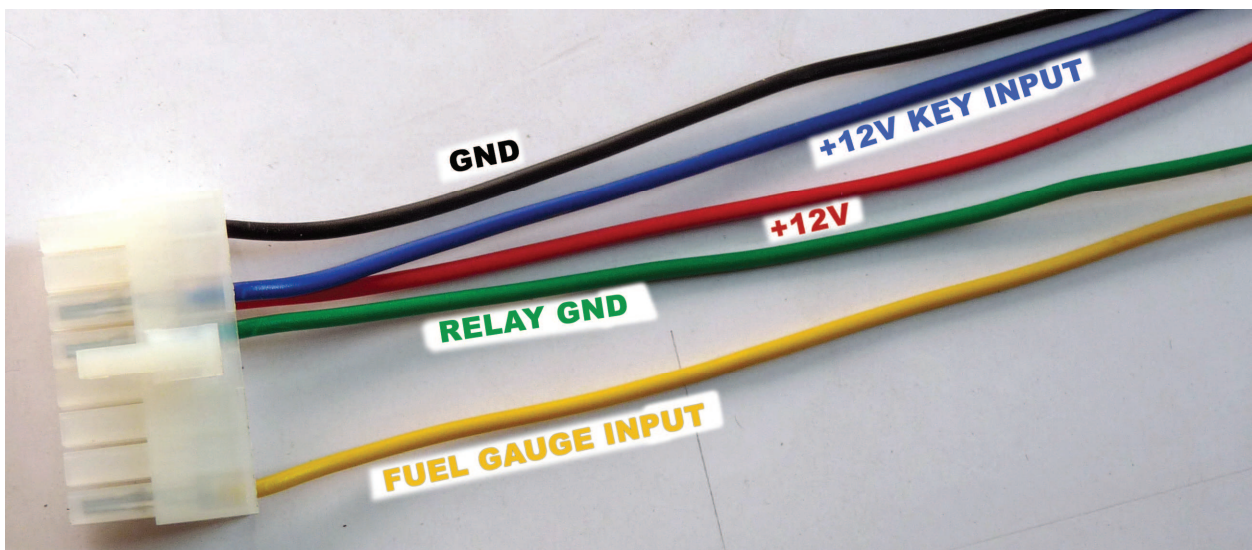
A. Connect GSM Antenna

B. Connect GPS Antenna

Wire Colour Specifications

Connect wires as per specification given in above picture. A wrong connection may damage the module.

Connector Wire Colour Code

Black	Ground (-ve terminal of car battery)
Red	+12V (+ve terminal of car battery) **Note: Do not connect this terminal with +24V DC**
Blue	+12 or +24V ignition key input
Green	Ground of ignition or fuel pump cutoff relay
Yellow	Fuel sensor input from fuel gauge or float

Relay Wire Colour Code

Blue	Connect with blue wire of connector if ignition key input has+12V or red wire of connector. This relay remains on in normal operation. If it connected with the red wire then it will consume power in idle condition. **Note: Do not connect this terminal with +24V DC**
Green	Connect it with the green wire of the connector.
Red	Cut Fuel Pump or valve supply wire and connect it with two red wire.

Calibration of Fuel Sensor

There are two methods to calibrate the fuel sensor.
1) By refilling the fuel tank from empty to full in five steps 0%, 25%, 50%, 75%, 100% and sending the corresponding SMS to the device.
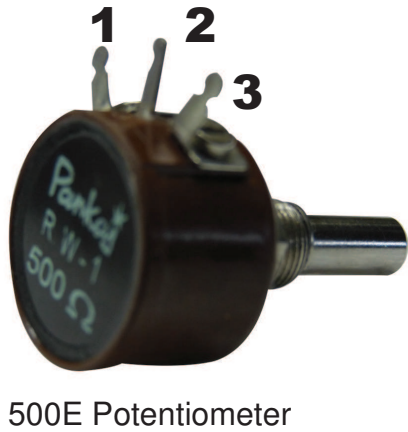2) Using a potentiometer in place of float connection.

Method 1:
- Empty the fuel tank so that the fuel gauge shows 0%. Wait for about four minutes and send SMS "$CAL000$" to the SIM no. of the device.
- Fill up the tank so the gauge shows 25% of fuel. Wait for about four minutes and send SMS "$CAL025$".
- Fill up the tank so the gauge shows 50% of fuel. Wait for about four minutes and send SMS "$CAL050$".
- Fill up the tank so the gauge shows 75% of fuel. Wait for about four minutes and send SMS "$CAL075$".
- Fill up the tank so the gauge shows 100% of fuel. Wait for about four minutes and send SMS "$CAL100$".

Each time you will get a reply SMS from the device at the time of calibration. The ADC values mentioned in the SMS should be linearly/non-linearly increasing or decreasing manner. For example the values should be like (0% - 45, 25% - 175, 50% - 350, 75% - 480, 100% - 620) or (0% - 630, 25% - 520, 50% - 460, 75% - 210, 100% - 0). It should not be like (0% - 45, 25% - 175, 50% - 350, 75% - 220, 100% - 620). Here all are increasing except 75%.

Method 2:

You may also use a potentiometer as a float to change the fuel gauge value from 0% to 100% linearly instead of filling the fuel tank with fuel and apply the calibration procedure as stated above. The connection diagrams are shown below.

1 2 3

pin 1 & 2 short

1 2 3

500E Potentiometer

Before Calibration

12v / 24v

Fuel Gauge

GND

Float

Fuel tank

GND

Calibration Circuit

GPS Device

12v / 24v

Fuel Gauge

GND

500 E POT

GND

Float

Fuel tank

GND

After Calibration

GPS Device

12v / 24v

Fuel Gauge

GND

Float

Fuel tank

GND
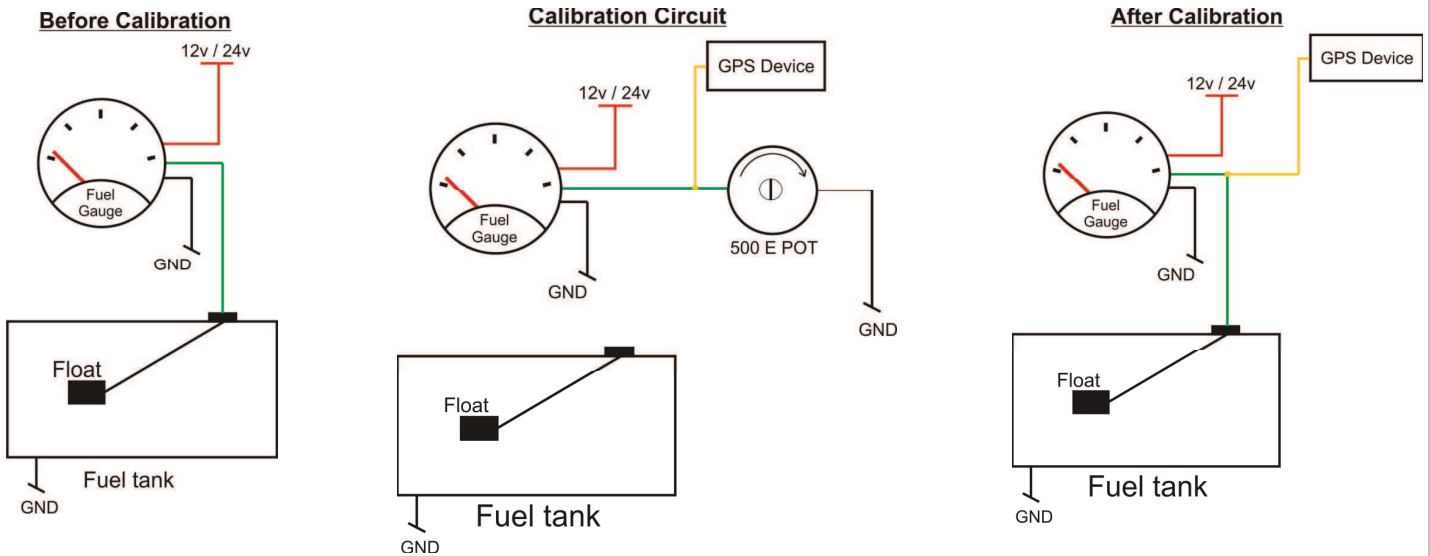
Configuring Device through SMS

You may configure the device by sending corresponding SMS to its SIM No. Each SMS starts and ends with $ symbol. First 3 characters of SMS content after $ symbol are command and others are value.

Over Speed Limit Setting: Send SMS **$OSL65$** from User Mobile Number to set over speed value. Here "OSL" is the command and 65 is the value in Km/Hr. You will receive a confirmation SMS.

Store User Mobile No.: You may store a mobile no. to which you want all types of alert through SMS and configure the device by sending SMS. For this you have to login to your account and save the desired mobile no. in "My Accounts" section. This number will be activated within 24Hrs. In that case you should have agreed to receive all SMS related to tracking system.

Ignition Cut-off: Send SMS **CUT** from User Mobile Number that is stored in the device to cut-off ignition/ fuel pump and immobilize the vehicle. You will receive a confirmation SMS.

Recovery from Ignition Cut-off: Send SMS **ION** from User Mobile Number to recover from the cut-off condition. You will receive a confirmation SMS.

Set Vehicle Number: Send $CVN<Your Vehicle No>$. For example $CVNWB24-1234$ will set vehicle no. WB24-1234 to the device.

Set APN of GPRS service provider: You have to manually set the corresponding APN to the device for GPRS communication. Firstly you have to inquire APN of your SIM Card provider by calling customer care. Now you have to set it in the device by sending **$APN<apn>,<User ID>,<Password>$.** For example the APN of Vodafone in India is "www", User ID and Password is blank, so send **$APNwww,,$.** The device has three pre-stored APN settings for Indian Telecomm Company. These are Airtel, Vodafone and BSNL.

Set Pre-Stored APN: If you are using a SIM card of AIRTEL then send **AIR.** If you are using a SIM card of VODAFONE then send **VOM** and If you are using a SIM card of BSNL then send **BSN.** It will set all configurations required for AIRTEL/ VODAFONE/ BSNL.

Set PROXY and PORT: Send $PXY<proxy address>:<Port>$. For example if proxy is 10.10.1.100 and port is 9401 then send **$PXY10.10.1.100:9401$.** If the proxy is blank then send website address instead of proxy. For example **$PXYwww.digilogsystems.com:80$.** Here www.digilogsystems.com is the website address and 80 is the port number. If you set APN using pre-stored data like AIR then you do not need to set proxy & port separately.

Change Data Update Rate: To change data update rate in moving condition send **$SIMx$** where x is in minute. For example if you want data to be updated on every 2 minute at moving condition then send **$SIM2$.** For continuous data update you have to set x=0.

Similarly data update rate at stop condition can be changed by sending SMS **$SIS15$**. Here data update interval at stop condition is 15 minutes.

Enable/Disable all SMS Alert: To enable/disable all SMS alert send **$EMSx$**. Here x is 1 to enable and 0 to disable.

Resetting Device: Send **RST** to reset the device.

Get stored ADC value of fuel calibration: Send ADC. You will get a return SMS with five ADC values of fuel at 0% to 100%. You may note down this values into a safe place for future calibration.

Fuel calibration through ADC Value: You may calibrate the fuel sensor directly putting the ADC values for the corresponding percent of fuel without practically refilling the tank or by using potentiometer if you have these values from previous calibration. For setting ADC values you have to send $XXX<xxx>$ where XXX is three digit value of fuel percentage i.e. 000 for 0%, 025 for 25%, 050 for 50%, 075 for 75% and 100 for 100% and xxx is the ADC value. Suppose if you want to set ADC values received from previous calibration as (0% - 45, 25% - 175, 50% - 350, 75% - 480, 100% - 620) then you have to send 00045, 025175, 050350, 075480, 100620.

Summarized SMS settings:

CUT	Ignition Off
ION	Ignition ON
$UN1usernumber$	Change User Number
$CVNvehiclenumber$	Set Vehicle Number
$OSLxx$	Set Over Speed Limit xx=Km/Hr
RST	Reset the device
$APNapnname,UID,PWD$	Set APN,User ID, Password
$PXYproxy:port$	Set Proxy:Port
$SIMx$	Consecutive Data Update Interval at Moving condition
$SISx$	consecutive Data Update Interval at Stop condition
STA	Report status of the vehicle to user
$EMSx$	Enable all alert SMS (x is 0-Disable, 1-Enable)
$CALxxx$	Calibrate fuel xxx is 3 digit fuel percentage (025 for 25%)
000114	Set ADC Value directly (ex: for 000 percent adc value 114)
ADC	Get all stored fuel ADC Values
AIR	Set GPRS Data for Airtel
VOM	Set GPRS Data for Vodafone
BSN	Set GPRS Data for BSNL
ABT	Get info about the device like firmware version etc.

For more information and updates please visit http://www.digilogsystems.com or mail us to support@digilogsystems.com.